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(54) **Gaming machine**

(57) A gaming or amusement machine 2 comprises a reel mechanism and a video monitor 20. A nudging facility is provided, whereby the symbols on the reels 4 are displayed in corresponding positions on the monitor screen, and a user can index the symbols on the monitor screen in an attempt to achieve a winning combination. The screen preferably displays more symbols than are viewable on the reels.

The machine preferably calculates and indicates the most favourable winning combination which can be achieved by the indexing operation.

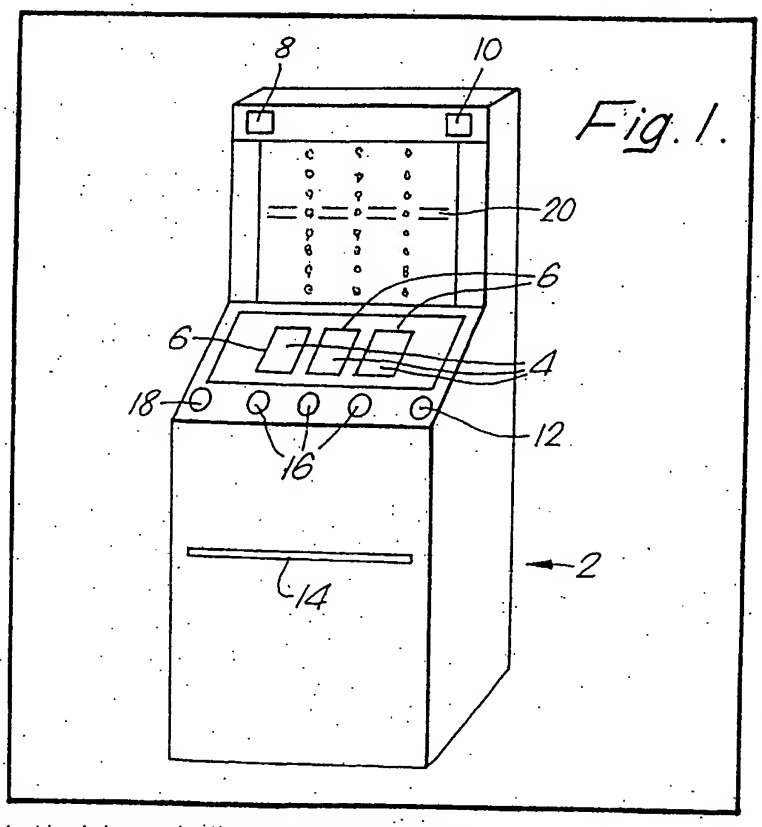

Fig. 1.

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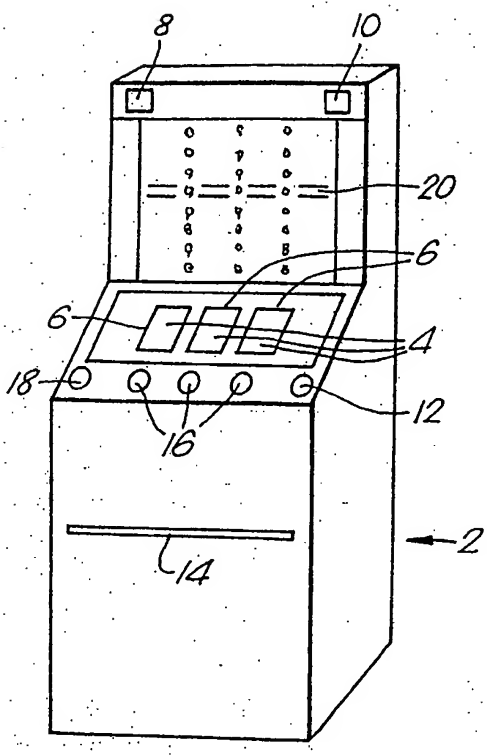
The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

Fig. 1.



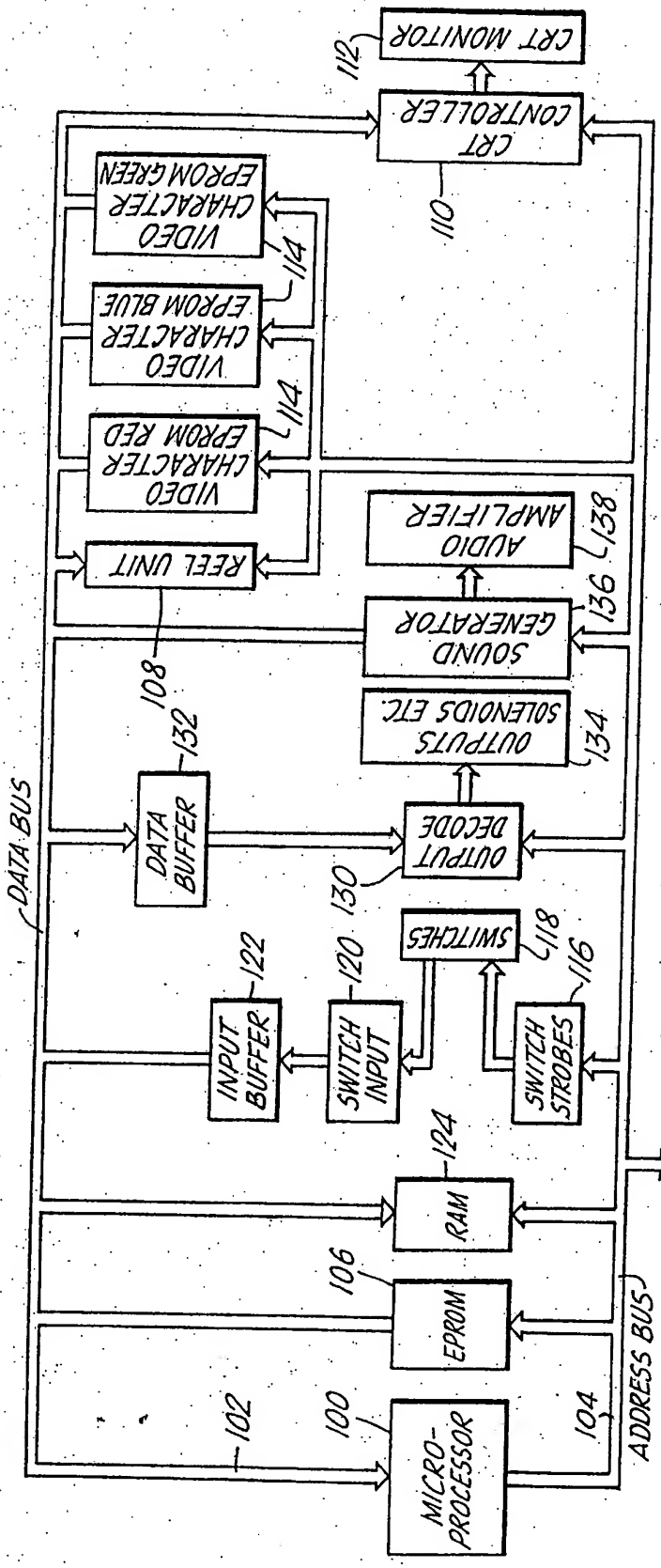

CRT MONITOR
112
CRT CONTROLLER
110
VIDEO CHARACTER EPROM GREEN
114
VIDEO CHARACTER EPROM BLUE
114
VIDEO CHARACTER EPROM RED
114
REEL UNIT
108
AUDIO AMPLIFIER
138
SOUND GENERATOR
136
OUTPUTS SOLENOIDS ETC.
134
DATA BUFFER
132
OUTPUT DECODE
130
SWITCHES
118
INPUT BUFFER
122
SWITCH INPUT
120
SWITCH STROBES
116
DECODE
140
RAM
124
EPROM
106
MICRO-PROCESSOR
100
102
104
DATA BUS
ADDRESS BUS

Fig. 2.

Fig. 3A.

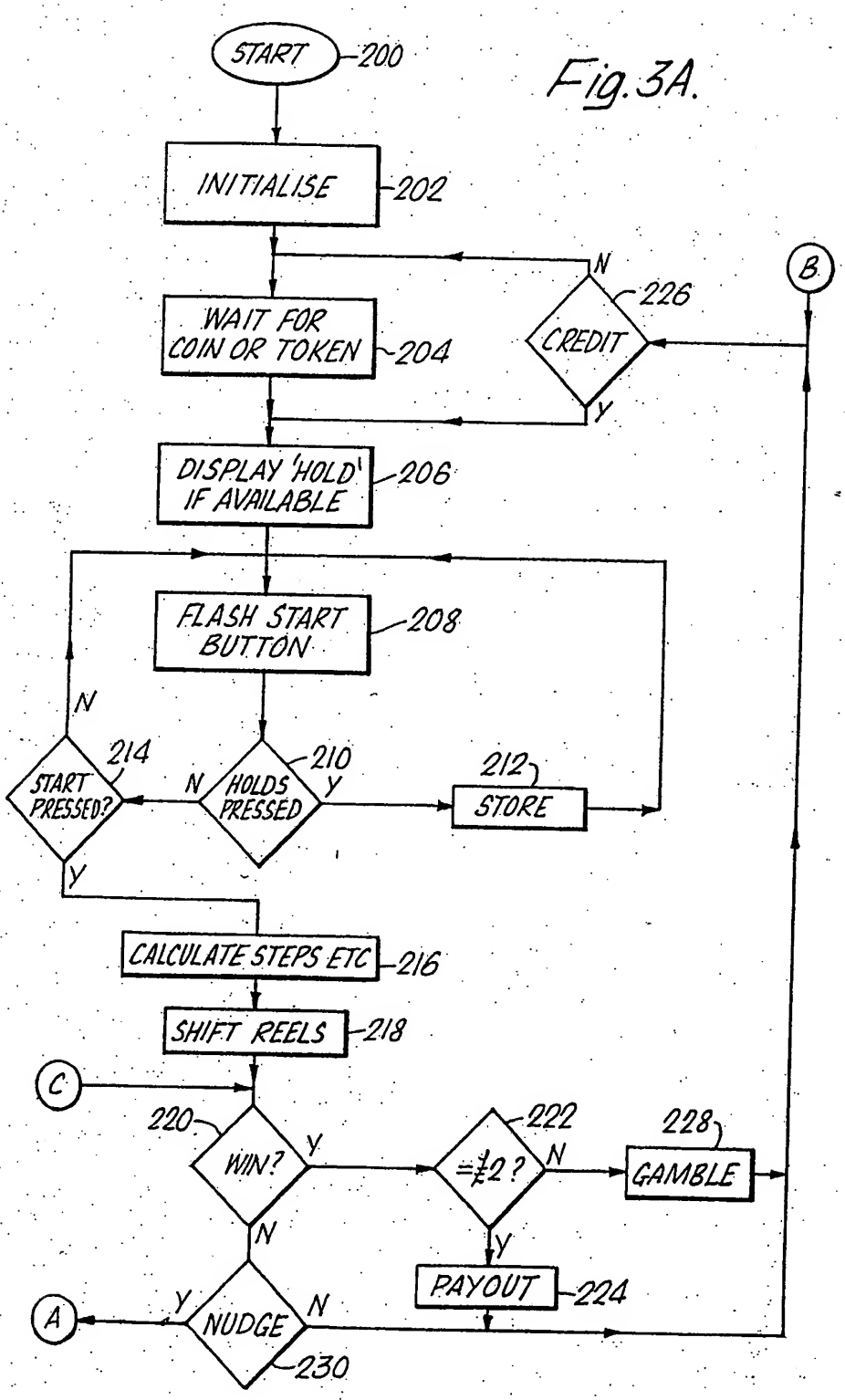
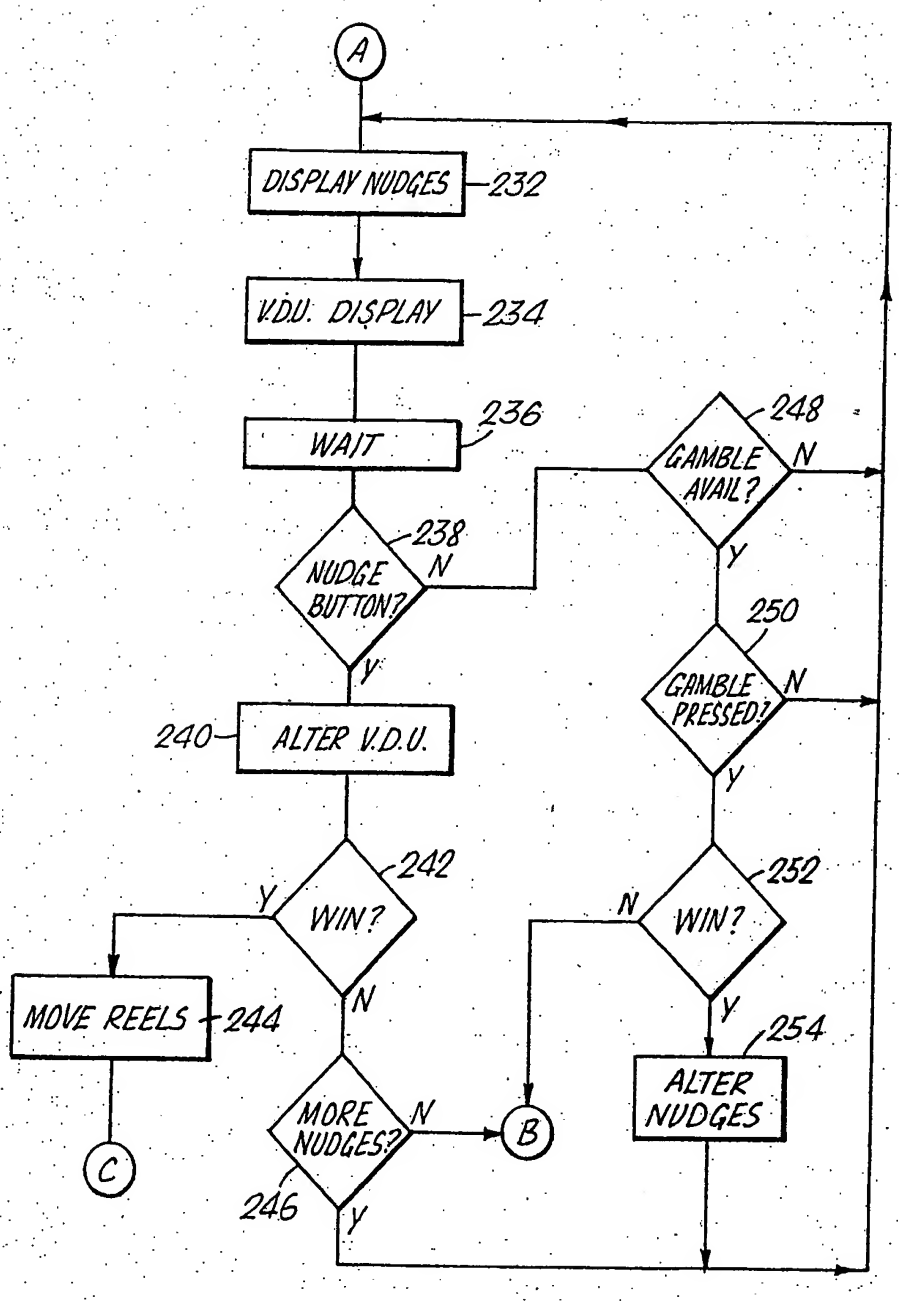

START
200
INITIALISE
202
WAIT FOR COIN OR TOKEN
204
CREDIT
226
N
Y
B
DISPLAY 'HOLD' IF AVAILABLE
206
FLASH START BUTTON
208
START PRESSED?
214
HOLDS PRESSED
210
STORE
212
CALCULATE STEPS ETC
216
SHIFT REELS
218
C
WIN?
220
=£2?
222
GAMBLE
228
PAYOUT
224
NUDGE
230
A

Fig. 3B.


A
DISPLAY NUDGES
232
V.D.U. DISPLAY
234
WAIT
236
NUDGE BUTTON?
238
N
Y
240
ALTER V.D.U.
242
WIN?
Y
N
MOVE REELS
244
C
MORE NUDGES?
246
N
Y
B
GAMBLE AVAIL?
248
N
Y
GAMBLE PRESSED?
250
N
Y
WIN?
252
N
Y
ALTER NUDGES
254

SPECIFICATION

Gaming or amusement machine

This invention relates to gaming or amusement machines.

One known form of gaming machine, commonly called a fruit machine, has a mechanism comprising a plurality of reels which carry symbols and which are independnetly rotatable so as to display the symbols in different combinations. By insertion of a coin, a user can operate the machine to cause the reels to rotate. If, upon stopping of the reels, the displayed symbols are in a predetermined winning relationship, the machine either pays out coins to a predetermined value, or increments a credit count stored in the machine.

Such mechanical fruit machines have in the past been provided with what is known as a "nudge" facility. Occasionally, during the operation of the machine, the user is given the option of indexing one or more of the stationary reels so as to alter the combination of symbols displayed in an attempt to achieve a winning combination. For example, there might be a "win line" formed of aligned symbols from different reels, at which the winning combination must appear before a win is achieved. During the nudge option, the user causes one of the reels to shift so that the symbol on the reel in the win line is replaced by the next symbol around the circumference of the reel. This operation can be repeated for the same reel or for different reels until the permitted number of "nudges" has been used up, or until a winning combination has been achieved.

It has been proposed to provide, instead of the reel mechanism, a video display monitor which displays a simulation of the rotatable reels. However, such devices have been found to be less popular than the conventional fruit machines using mechanical reels.

The present invention is intended to provide an improvement in gaming or amusement machines provided with a nudge facility, and in a general aspect provides a machine which incorporates both a reel mechanism and a display screen, both of which can display corresponding symbols, the machine being arranged so that a nudge operation can be carried out on the symbols on the display screen.

In accordance with a specific aspect of the invention, there is provided a gaming or amusement machine having a reel mechanism comprising a plurality of reels each carrying symbols, the reels being rotatable to display the symbols in different combinations, a display screen operable to display symbols corresponding to those on the reels, and means for altering the display on the display screen in a manner corresponding to the indexing of a reel.

Preferably, the display screen simulates the reels; in other words, the symbols on the screen not only correspond to those on the reels, but the symbols corresponding to each reel are displayed in the same physical sequence as the actual symbols on the reel.

The indexing of the simulated reels on the display screen may take place at the same time as the indexing of the mechanical reels. Preferably however the indexing of the simulated reels takes place independently of the operation of the reel mechanism. In either case, the simulated reels on the display screen may, before any indexing is carried out, be displayed in the same relative positions as the mechanical reels. Additionally, if the indexing operation on the simulated reels is carried out independently of the operation of the reel mechanism, then if desired the machine can be arranged to shift the reels, after the indexing of the simulated reels, to bring the positions of the mechanical reels into agreement with those of the simulated reels. This however is not essential.

The invention thus allows the provision of a machine in which there are effectively two corresponding sets of reels, one set being in mechanical form and the other being displayed on a screen. This results in a much more versatile machine than one which incorporates only mechanical reels or only a video display, and facilitates the provision of a number of desirable features.

For example, only a relatively small proportion of the symbols on each of the mechanical reels might normally be visible, and the display screen could be arranged so as to display a much greater proportion, or indeed all of the symbols on each reel. This would be attractive to a user, and would enable him to judge better which reels to choose to index.

Furthermore, a machine incorporating both a reel mechanism and a display screen would inherently be more attractive to a user than a machine incorporating only one of these items. Also, the display screen could be arranged to display symbols only during the nudging operation; at other times it could be used for other purposes, for example, so as to display instructions for operating the machine, or other information intended to attract users.

In a preferred embodiment, the machine is operable to provide an indication of which symbols the user should index in order to achieve a winning combination. The machine might, for example, be arranged to calculate and indicate the indexing operations needed to achieve the best possible winning combination. The use of a display screen makes it much easier to indicate what indexing operation should be carried out. For example, the best possible winning combination might be indicated by flashing the symbols intended to form the winning combination, which symbols might not be visible if the conventional reel mechanism were being used. The user would perform the indexing operations until the winning symbols are brought into alignment.

The concept of arranging for the machine to calculate and indicate how a user is to index reels during a nudging operation in order to achieve a symbol or combination of symbols in a winning

position is considered to be independently advantageous. Accordingly, the invention provides, in an independent aspect, a gaming or amusement machine having a plurality of mechanical and/or simulated reels each of which can be indexed a selected number of times during a nudging operation to bring one or more of the reels into a winning position, the machine being operable to indicate to a user how the selective indexing should be carried in order to achieve said winning position.

It is to be noted that, instead of having the user selectively press buttons in order to index a reel during the nudging operation using a machine in accordance with either of the aspects of the invention set out above, the machine could be arranged automatically to index the reels, and the user would then press buttons in order to selectively halt the indexing of the various reels in order to achieve the winning position.

The nudge facility would normally be provided only at certain occasions during the operation of the machine. The facility may, for example, be provided only at random, or pseudo-random, intervals. Alternatively, or additionally, the facility may be provided when a reel mechanism displays a particular symbol or combination of symbols in a winning position.

The time at which the nudge facility, if available, actually comes into operation can be selected as desired. For example, during a single game which could be initiated either by the insertion of a coin or by the decrementing of a credit count, the machine can be arranged to provide the nudge facility only after the reels have stopped spinning and any win resulting from the halting of the reels in a predetermined relationship has been accounted for. Alternatively, the nudge facility could be provided prior to the spinning of the reels in the conventional manner (in which case the spinning of the reels could be conditional upon whether or not a win is achieved during the nudging operation).

In another arrangement, the nudge facility could be provided during the spinning of the reels, in which case it is preferred that the machine be arranged to continue the spinning of the reels until the nudge operation has finished. This arrangement has the advantage that less time is required to complete both a nudging operation and a spinning operation, so that the average rate at which games are played is increased.

The machine is preferably operable to determine that a game has been won (and consequently increment the credit count or operate a payout mechanism) in response to the simulated reels reaching winning positions and in response to the mechanical reels reaching winning positions. Preferably, the winning positions of the simulated reels are the same as the winning positions of the mechanical reels.

An arrangement embodying the invention will now be described by way of example with reference to the accompanying drawings, in which:—

Figure 1 shows a gaming machine in accordance with the invention;

Figure 2 is a block diagram of the circuitry of the machine; and

Figure 3 is a flow chart to indicate how the machine operates.

Figure 1 shows a gaming machine 2 having a reel mechanism comprising three reels 4, although more could be provided if desired. The reels are mounted for rotation about a common, horizontal axis, and carry symbols spaced around the circumferences of the reels. Portions of the circumferences of the reels can be viewed through display windows 6. The arrangement may be such that, for example, three symbols on each reel 4 can be seen through the window 6.

The machine 2 has slots in mechanism 8 and 10 for accepting coins and tokens, and a start button 12 which can be operated after insertion of a coin or token to initiate spinning of the reels 4.

The machine 2 has a tray 14 to which the machine delivers coins or tokens if a user wins a game.

The machine is provided with individual reel selection buttons 16, and a cancel button 18, for purposes to be described later.

The above items are present in conventional gaming machines. The machine of Figure 1 is additionally provided with a display screen 20, which in this case is the screen of a cathode ray tube monitor.

The screen 20 displays three vertical lines 22 of symbols, each line representing the symbols on a respective one of the three reels 4. The displayed symbols on the screen 20 are identical, or similar to the symbols on the reels 4, and are disposed at positions corresponding to the symbols on the reels 4. Thus, the central symbol on a reel 4 as seen through a window 6 may be positioned at the centre of the corresponding line 22 of symbols on the screen 20.

The way in which the machine operates, and the display on the screen 20 alters, will be described below.

Referring to Figure 2, the operation of the machine 2 is under the control of a microprocessor 100 connected to data and address buses 102 and 104, respectively. The way in which the microprocessor 100 operates is determined by a program stored in a non-volatile memory 106, such as an EPROM, connected to the data and address buses 102 and 104.

The data and address buses 102 and 104 are also connected to a reel mechanism 108, which incorporates the three reels 4 referred to above.

The reel mechanism 108 is preferably a conventional stepper reel mechanism. In such a mechanism, each of the reels can be indexed by an impulse applied to the drive motor of the reel. This would cause the central symbol viewed through a window 6 to be replaced by the next symbol around the circumference of the reel.

By applying appropriate addresses on the address bus 104, and by transmitting appropriate

data on the data bus 102, the microprocessor 100 can control the number of pulses delivered to the driver motors of each of the reels and thereby cause the reels to rotate by a predetermined amount. Also the positions of the reels can be determined by data delivered to the data bus 102 by the reel mechanism 108.

The data and address buses 102 and 104 are also connected to a controller 110 which controls a cathode ray tube colour monitor 112 incorporating the display screen 20.

The controller 110 has a memory whose contents determine what is displayed on the monitor 112. The memory stores information concerning the respective red, blue and green components of the displayed symbols for separately controlling the corresponding electron guns of the monitor 112. The microprocessor 100 can change the contents of the memory of the controller 110 in order to alter the displayed symbols. Many suitable designs for the controller 110 are readily available.

There are three further non-volatile memories 114 coupled to the data and address buses 102 and 104. These store the red, blue and green components of each of the symbols to be displayed on the screen 20. The microprocessor 100 transfers the data relating to the colours of a respective display symbol for the memories 114 to those locations in the memory of the controller 110 which correspond to the positions at which that symbol is to be displayed.

In an alternative embodiment, to reduce the memory requirements of the controller 110, the controller can be arranged to store only sufficient information to identify what symbol is to be displayed at each position on the display screen 20, and can be arranged to access the memories 114 to obtain the necessary picture data when the respective positions on the screen are being scanned.

The address bus 104 is connected to a device 116 for strobing the switches 118 of the machine 2. The switches 118 include the above-mentioned switches 12, 16 and 18.

Upon actuation of one of the switches 118, a switch input device 120 delivers, via an input buffer 122, data to the bus 102 to indicate to the microprocessor 100 that the switch has been actuated.

A random access memory 124 coupled to the address buses 102 and 104 is operable, during use, to store such information as the positions of the reels 4, the positions of the symbols displayed on the screen 20, and the amount of accumulated credit, etc.

An output decode device 130 is coupled to the address bus 104 and transmits data received from the address bus 102 via a data buffer 132 to output devices 134, including solenoids which are actuated to disperse coins and tokens, lights on the machine to indicate different modes of operation, etc.

A sound generator 136 is coupled to the buses 102 and 104 so that the microprocessor can cause the generator to generate audio signals which are delivered to an amplifier 138 and then to a speaker (not shown).

An address decoder 140 is coupled to the address bus 104, and is arranged to enable the devices selected by the microprocessor 100 for transmission or reception of data by means of enable lines (not shown).

The way in which the microprocessor 100 is programmed to operate the machine will now be described with reference to the flow chart of Figure 3.

After the start of the program as indicated at 200, there follows an initialisation step 202, in which the microprocessor enters appropriate initial values into various registers. The positions of the reels are memorised, or alternatively the reels are driven to a predetermined start position.

At step 204, the machine waits for a coin or token to be inserted. After insertion, a credit count is incremented, and the program proceeds to step 206. Here, the microprocessor determines whether or not a "HOLD" facility should be provided, whereby a user can select one or more reels to remain stationary during the subsequent operation of the machine. The facility may be provided at random or pseudo-random intervals. If a hold facility is available, the selection buttons 16 are illuminated.

Then, at stop 208, a light beneath the start button 12 is flashed to indicate that the machine is ready for operation.

At step 210, if the hold facility is available, the microprocessor determines whether one of the selection buttons 16 or the cancel button 18 has been pressed. If so, the program proceeds to step 212, at which the microprocessor records which of the reels has been selected to be held, and alters the illumination of the selection buttons 16 appropriately. The selection can be cancelled by operation of the cancel button 18. The program then loops back to steop 208.

Assuming that the hold facility is not available, or that none of the buttons 16 and 18 have been operated, the program proceeds from step 210 to step 214, where the microprocessor determines whether the start button 12 has been pressed. If not, the program loops back to step 208.

The above steps from 208 to 214 are repeated until the start button is pressed, whereupon the program proceeds from step 214 to step 216.

Here the accumulated credit count is decremented, and the program calculates how many times each of the reels should be incremented, i.e. how much the reels should be rotated. This can be calculated in a conventional manner. If desired, the program can then wait until the start button has been released.

The program then proceeds to step 218, at which the microprocessor causes the reels to be rotated by the calculated amount. If any reels have been "held", they are not rotated.

When the reels have stopped rotating, the microprocessor determines at step 220 whether or not any or all of the reels are in predetermined

winning positions which are stored in a table in the EPROM 106. It may be necessary for a combination of reels to have a predetermined relationship before a win is achieved.

If a winning position is achieved, the program proceeds from step 220 to step 222. Here the program decides whether the value of the win (also determined from the table) is equal to the maximum permitted value, which is in this case £2. If it is equal to the maximum, the program proceeds to step 224, at which the machine can either pay out the value of the win, or can increment the credit count appropriately. The program then proceeds to step 226, to determine whether there is any accumulated credit left; if so, the program proceeds to step 206 to begin a new game, but if the program proceeds to step 204 to wait for a further coin or token to be inserted.

If at step 222 the microprocessor determines that the win value is less than the maximum, the program proceeds to step 228. This is a "gamble" routine whereby a user can, if he wishes, select a gamble option by pressing a button. The machine will then at random either double the win value, or cancel the win. Assuming that the user's winnings are doubled, he can carry on gambling until a predetermined limit is reached. Accordingly, the gamble routine 228 will finish when the maximum limit has been won, when a gamble has failed and the winnings are reduced to zero, or when the user chooses not to operate the gamble feature. The program then proceeds to step 226.

Assuming that, after the reels have been spun, the program decides at step 220 that a winning position has not been reached, the program proceeds to step 230. Here, it is decided whether a nudge facility is available. This can be determined by random or pseudo-random calculations, or can be provided when a particular symbol or combination of symbols is displayed in the windows 6 by the reels 4.

If the nudge facility is not available, the program proceeds to step 226.

Assuming that the nudge facility is available, the program proceeds to step 232. Here, the selection buttons 16 and the cancel button 18 are illuminated, and an appropriate display is provided to indicate to the user that the nudge facility is available. It should also preferably calculate and display a particular number of "nudges" which is available, which represents the number of times the symbols displayed on the screen 20 can be indexed. In alternative arrangements, instead of providing a limit on the number of nudges, there can be a time limit so that the user can perform an indefinite number of indexing operations within that time limit.

Then, at step 234, the microprocessor 110 determines the positions of all the reels 4, and in response thereto causes the CRT controller 110 to display on the screen 20 of the monitor 112 all the symbols on the reels 4 in their correct relative positions. For example, each reel may carry 4 twenty-four symbols disposed successively around its circumference. The display screen 20 preferably displays all twenty-four symbols of each reel in the corresponding lines 22. The three viewable symbols on each reel will be located substantially at the centre of each of the lines 22.

The screen 20 preferably also displays the position of a winning line (of which there may be more than one). Such a line consists of symbols from each of the reels and extends horizontally across the screen.

Accordingly, the user can see from the screen the positions of all the symbols on each of the reels. He can also determine how much each of the simulated reels the display screen should be shifted, and in what direction, to achieve a winning combination on the winning line.

The microprocessor is preferably capable of calculating how the displayed symbols should be shifted in order to achieve a winning combination, and is preferably capable of working out which of the achievable winning combinations is the best (i.e. provides the highest win value). The machine can then indicate to the user how he can achieve his winning combination. This could, for example, be achieved by causing those symbols on the screen which are to form the winning combination to flash on and off.

The program then proceeds to step 236, where it waits until a button is pressed.

At step 238, the microprocessor determines whether it was one of the selection buttons 16, which are used to cause the indexing of the simulated reels on the display screen 20, which was pressed.

Assuming that one of the buttons 16 was pressed, the program proceeds to step 240. Here, the display on the screen 20 is altered in accordance with which of the buttons 16 was pressed. Thus, for example, if the central button 16 was pressed, indicating the desire to "nudge" the central one of the simulated reels on the display screen 20, all the symbols in the central line 22 on the screen will be shifted downwardly, with the exception of the lowermost symbol which will be transferred to the top of the line. During this operation, the reels 4 remain stationary.

Further buttons (not illustrated) are preferably provided to permit "nudging" in an upward direction, as well as a downward direction.

In an alternative embodiment, instead of shifting the displayed symbols on the screen 20, that section of the displayed win line associated with the chosen reel is shifted upward or downward to indicate a different symbol.

After this nudging operation, the program proceeds to step 242, whereupon the microprocessor determines whether the symbols displayed on the screen 20 are in a winning combination. To do this, the random access memory 124 preferably keeps a record of the positions of the various displayed symbols, and is updated after each nudge operation. The microprocessor can then compare the contents of the random access memory with the stored table of

winning positions to determine whether a win has been achieved.

Assuming that a win has been achieved, the program proceeds from step 242 to step 244, at which point the microprocessor 100 issues instructions to cause the various reels to be shifted in accordance with the shifting of the simulated reels on the display screen 20 so as to bring the reels 4 into positions matching those of the simulated reels on the screen 20. This step 244 could be omitted if desired.

The program then proceeds, via C, to step 220, and the program proceeds as described above.

Assuming that a winning combination was not achieved, the program proceeds from step 242 to step 246. Here the microprocessor 100 decrements the number of available nudges and determines whether any further nudges can be carried out. If so, the program loops back to step 232. If not, the program proceeds via B to step 226 to permit another game to be carried out.

The calculation of the most favourable nudges operations in step 234 could be repeated each time a nudging operation has been carried out, so that if the user initially decides not to operate the machine in the indicated manner, different achievable winning combinations may be indicated to him throughout the operation of the nudging facility.

The illustrated embodiment has an optional gambling feature which is brought into operation when the nudging facility is offered. Thus, if at step 238 the microprocessor determines that a button other than one of the selection buttons 16 has been operated, the program proceeds the step 248. Here, the program determines whether a gamble feature is to be provided, which could be arranged to occur at random or pseudo-random intervals. If the gambling feature is not to be provided, the program simply loops back to step 232.

On the other hand, if the gambling feature is available, the program proceeds to step 250, whereupon the microprocessor determines whether or not a gamble button (not shown) has been pressed. If not, the program loops back to step 232, but otherwise the program proceeds to step 252.

At step 252, the microprocessor determines whether or not the user has won or lost the gamble option, which can be determined on a random or pseudo-random basis.

If the user has lost, the program proceeds via B to step 226 to start a new game. If he wins, the program proceeds from step 252 to step 254, whereupon the number of permitted nudges is increased, for example doubled.

The program then loops back to 232, so that the machine will indicate the new number of nudges, and the microprocessor will recalculate the most favourable winning position.

In a modification of the above embodiment, the nudge feature is brought into operation during the spinning of the reels. The reels are kept spinning while the nudge facility is being used. Assuming that a win is achieved using the nudge operation, the reels are controlled to stop spinning at the positions shown on the display screen. Otherwise, the reels stop as in the conventional game, so that even if the player loses when using the nudge facility, the reels may stop in a winning position.

In another arrangement, the decisions as to whether a nudge facility is to be provided can be made immediately upon insertion of the coin, in which case the nudging operation would occur before the reels are spun.

The term reel mechanism is used herein to refer to any kind of mechanism incorporating a rotating device such as a wheel or drum carrying symbols.

Instead of a cathode ray tube, other types of electrically alterable display screens, such as a liquid crystal or electroluminescent matrix display screen, could be used.

In another modification of the above embodiment, an extra "nudge" reel can be provided. This would carry a plurality of numbers around its circumference. When the nudge facility is available, the reel is spun and then stopped to indicate a number which is the permitted number of nudging operations which can be carried out.

In a further modification, the mechanical reels can be indexed at the same time as the simulated reels on the screen. However, it is preferred that the display screen be altered independently of the operation of the reel mechanism to avoid the distraction of the indexing reels while the user is watching the screen. On the other hand, if the mechanical reels are indexed simultaneously, the user would than have a choice between watching the mechanical reels and watching the display screen.

New claims or amendments to claims filed on 2 March 1983

Superseded claims 1—17

New or amended claims:—

1. A gaming or amusement machine which can display a plurality of sets of symbols which can be selected in different combinations, the machine being capable of a nudging operation in which symbols of one or more of said sets are sequentially selected under the control of a user, wherein the machine is operable at the beginning of a nudging operation to determine a particular symbol or combination of symbols which can be selected under the control of the user during the nudging operation, the machine having means responsive to the determination to provide an indication to assist the user in controlling the machine to select the determined symbol or combination of symbols.

2. A machine as claimed in claim 1, including means whereby a user can individually control the sequential selection of symbols from each of the plurality of sets of symbols.

3. A machine as claimed in claim 2, wherein the machine is operable to indicate which of the sets of symbols should be controlled by the user

using said control means during the nudging operation in order to select the determined symbol or combination of symbols.

4. A machine as claimed in claim 2 or claim 3, wherein said control means can be operated by the user to initiate the sequential selection of a symbol from a set thereof.

5. A machine as claimed in claim 2 or claim 3, wherein said control means can be operated by the user to halt the sequential selection of symbols from a set thereof.

6. A machine as claimed in any preceding claim, wherein the machine is operable, when a combination of symbols is selected from respective sets thereof, to bring the symbols of the selected combination into alignment.

7. A machine as claimed in any preceding claim, wherein symbols of one or more of said sets can be selected in either of forward and reverse sequences.

8. A machine as claimed in any preceding claim, wherein the machine is operable to determine said particular symbol or combination of symbols by choosing the symbol or combination from a plurality of predetermined winning symbols or combinations each of which can be selected under the control of the user during the nudging operation and each of which is associated with a respective predetermined win value, the chosen symbol or combination being associated with the highest of said win values.

9. A machine as claimed in claim 8, wherein the machine is operable to perform said determination each time a symbol is sequentially selected during said nudging operation.

10. A machine as claimed in any preceding claim, having means for indicating to the user the total number of times symbols can be sequentially selected during a nudging operation.

11. A machine as claimed in claim 10, having means whereby a user can initiate a gambling operation, the machine being responsive to said initiation to determine whether said permitted number is to be increased, and if so to indicate the increased number.

12. A machine as claimed in any preceding claim, wherein the machine is operable to indicate the determined symbol, or the symbols of the determined combination, to assist the user in controlling the machine to select said determined symbol or combination.

13. A machine as claimed in any preceding claim, wherein said sets of symbols are each carried by a respective mechanical or simulated reel.

14. A machine as claimed in claim 13, wherein said reels are simulated reels produced by a display of the machine.

15. A machine as claimed in claim 14, wherein each set of simulated reel symbols is displayed in a line parallel to the lines of other sets of symbols.

16. A machine as claimed in claim 15, wherein the sequential selection of symbols from a set thereof is achieved by shifting the symbols in a said line in the direction of the line.

17. A machine as claimed in claim 16, wherein an endmost symbol in the said line is shifted to the opposite end of the line during the sequential selection of a symbol from said set.

18. A machine as claimed in any one of claims 14 to 17, further including a plurality of mechanical reels each carrying symbols corresponding to those of a respective simulated reel.

19. A machine as claimed in claim 18, wherein the display is operable to display, at any given time, more symbols of a simulated reel than are viewable on the corresponding mechanical reel.

20. A machine as claimed in claim 19, wherein the display is operable to display simultaneously all the symbols of each simulated reel.

21. A machine as claimed in any one of claims 18 to 20, wherein the machine is operable to rotate the simulated reels independently of the operation of the mechanical reels.

22. A machine as claimed in claim 21, wherein the machine is operable to rotate the mechanical reels, after the simulated reels have been rotated, in such a manner as to bring the positions of the symbols on the mechanical reels into agreement with the positions of the symbols of the simulated reels.

23. A machine as claimed in claim 21 or 22, wherein the machine is operable to index a simulated reel during a nudging operation while the mechanical reels are spinning.

24. A machine as claimed in claim 21 or 22, wherein the machine is operable to index a simulated reel during a nudging operation while the mechanical reels are stationary.

25. A machine as claimed in any one of claims 18 to 24, wherein the simulated reel symbols produced by said display are positioned in the same order as the symbols on the corresponding mechanical reels.

26. A machine as claimed in any one of claims 14 to 25, wherein said display is a cathode ray tube screen.

27. A gaming or amusement machine substantially as herein described with reference to the accompanying drawings.

Claims

1. A gaming or amusement machine having a reel mechanism comprising a plurality of reels each carrying symbols, the reels being rotatable to display the symbols in different combinations, a display screen operable to display symbols corresponding to those on the reels, and means for altering the display on the display screen in a manner corresponding to the indexing of a reel.

2. A machine as claimed in claim 1, wherein the display screen is operable simultaneously to display more symbols than are viewable on said reels.

3. A machine as claimed in claim 2, wherein the display screen is operable to display all the symbols on each of the reels.

4. A machine as claimed in any preceding claim, having means for altering the display in a

manner corresponding to the indexing of a reel in either of opposed directions.

5. A machine as claimed in any preceding claim, having means selectively operable by the user to cause said altering means to alter the display.

6. A machine as claimed in any one of claims 1 to 4, wherein the altering means is automatically operable successively to alter the display, the machine having means permitting a user to stop the altering means from altering the display in a manner corresponding to the indexing of a reel.

7. A machine as claimed in any preceding claim, having means to indicate how the user should control said altering means in order to achieve a win.

8. A machine as claimed in any preceding claim wherein the symbols corresponding to those on each reel are displayed in a line parallel to the lines of symbols corresponding to those on the other reels.

9. A machine as claimed in claim 8, wherein the altering of the display is achieved by shifting the symbols in a said line in the direction of the line.

10. A machine as claimed in claim 9, wherein an endmost symbol in the said line is shifted to the opposite end of the line during the altering of the display.

11. A machine as claimed in any preceding claim, wherein the altering means is operable to alter the display independently of the operation of the reel mechanism.

12. A machine as claimed in claim 11, operable to cause the reels to rotate, after the altering of the display, in such a manner as to bring the positions of the symbols on the reels into agreement with the positions of the symbols on the display screen.

13. A machine as claimed in claim 11 or claim 12, wherein the altering means is operable to alter the display in a manner corresponding to the indexing of a reel while the reels are spinning.

14. A machine as claimed in claim 11 or claim 12, wherein the altering means is operable to alter the display in a manner corresponding to the indexing of a reel while the reels are stationary.

15. A machine as claimed in any preceding claim, wherein the symbols on the screen are positioned in the same sequence as the symbols on the corresponding reels.

16. A machine as claimed in any preceding claim, wherein said display screen is the screen of a cathode ray tube monitor.

17. A gaming or amusement machine substantially as herein described with reference to the accompanying drawings.

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